

WHAT IS CLAIMED IS:

1. A communication system comprising:

5 a plurality of access point apparatus arranged along a predetermined route,

a plurality of station apparatus arranged on a mobile body adapted to move along the predetermined route and

10 an intra-mobile-body communication network for connecting the plurality of station apparatus,

the station apparatus being adapted to become belonging to one of the access point apparatus by wireless communication so as to be connected to a network by way of the access point apparatus,

15 the station apparatus located front-most in the moving direction of the mobile body being adapted to notify the other station apparatus with the information acquired at the time of retrieving an access point apparatus to be belonging to by way of the intra-mobile-body communication network.

2. A communication system comprising:

20 a plurality of access point apparatus arranged along a predetermined route,

a plurality of station apparatus arranged on a mobile body adapted to move along the predetermined route and

an intra-mobile-body communication network for connecting the plurality of station apparatus,

25 the station apparatus being adapted to become belonging to one of the access point apparatus by wireless communication so as to be connected to a network by way of the access point apparatus,

each of the station apparatus having a means for judging if it is located front-most in the moving direction of the mobile body or not,

the station apparatus judging itself to be located front-most in the moving

direction of the mobile body being adapted to notify the other station apparatus with the information acquired at the time of retrieving an access point apparatus to be belonging to by way of the intra-mobile-body communication network.

3. A communication system comprising:

5 a plurality of access point apparatus arranged along a predetermined route,

a plurality of station apparatus arranged on a mobile body adapted to move along the predetermined route and

10 an intra-mobile-body communication network for connecting the plurality of station apparatus,

the station apparatus being adapted to become belonging to one of the access point apparatus by wireless communication so as to be connected to a network by way of the access point apparatus,

the station apparatus other than the station apparatus located front-most in the moving direction of the mobile body being adapted to acquire the information acquired by the station apparatus located front-most in the moving direction of the mobile body at the time of retrieving an access point apparatus to be belonging to by way of the intra-mobile-body communication network.

4. A communication system comprising:

20 a plurality of access point apparatus arranged along a predetermined route,

a plurality of station apparatus arranged on a mobile body adapted to move along the predetermined route and

25 an intra-mobile-body communication network for connecting the plurality of station apparatus,

the station apparatus being adapted to become belonging to one of the access point apparatus so as to be connected to a network by way of the access point apparatus,

each of the station apparatus having a means for judging if it is located

front-most in the moving direction of the mobile body or not,

the station apparatus other than the station apparatus located front-most in the moving direction of the mobile body being adapted to acquire the information acquired by the station apparatus located front-most in the moving direction of the mobile body at the time of retrieving an access point apparatus to be belonging to by way of the intra-mobile-body communication network.

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5. A communication system comprising:

a plurality of access point apparatus arranged along a predetermined route,

10 a plurality of station apparatus arranged on a mobile body adapted to move along the predetermined route and

an intra-mobile-body communication network for connecting the plurality of station apparatus,

15 the station apparatus being adapted to become belonging to one of the access point apparatus so as to be connected to a network by way of the access point apparatus,

20 the system further comprising storage means connected to the intra-mobile-body communication network and adapted to store information showing the access point apparatus to which each of the station apparatus used to belong to,

the station apparatus located front-most in the moving direction of the mobile body being adapted to store the information it acquires at the time of retrieving an access point apparatus to be belonging to in the storage means by way of the intra-mobile-body communication network,

25 the station apparatus other than the station apparatus located front-most in the moving direction of the mobile body being adapted to refer to the information stored in the storage means by the front-most station apparatus prior to retrieving an access point apparatus to be belonging to.

6. A communication system comprising:

a plurality of access point apparatus arranged along a predetermined route,

a plurality of station apparatus arranged on a mobile body adapted to move along the predetermined route and

5 an intra-mobile-body communication network for connecting the plurality of station apparatus,

the station apparatus being adapted to become belonging to one of the access point apparatus so as to be connected to a network by way of the access point apparatus,

10 each of the station apparatus having storage means for storing information showing the access point apparatus to which it used to belong to,

the station apparatus located front-most in the moving direction of the mobile body being adapted to store the information it acquires at the time of retrieving an access point apparatus to be belonging to in its storage means,

15 the station apparatus other than the station apparatus located front-most in the moving direction of the mobile body being adapted to refer to the information stored by the front-most station apparatus in its storage means prior to retrieving an access point apparatus to be belonging to.

7. A communication system comprising:

20 a plurality of access point apparatus arranged along a predetermined route,

a plurality of station apparatus arranged on a mobile body adapted to move along the predetermined route and

25 an intra-mobile-body communication network for connecting the plurality of station apparatus,

the station apparatus being adapted to become belonging to one of the access point apparatus so as to be connected to a network by way of the access point apparatus,

the system further comprising storage means connected to the

intra-mobile-body communication network and adapted to store information showing the access point apparatus to which each of the station apparatus used to belong to,

5 each of the station apparatus having means for judging if it is located front-most in the moving direction of the mobile body or not,

 the station apparatus located front-most in the moving direction of the mobile body being adapted to store the information it acquires at the time of retrieving an access point apparatus to be belonging to in the storage means by way of the intra-mobile-body communication network,

10 the station apparatus other than the station apparatus located front-most in the moving direction of the mobile body being adapted to refer to the information stored in the storage means by the front-most station apparatus prior to retrieving an access point apparatus to be belonging to.

8. A communication system comprising:

15 a plurality of access point apparatus arranged along a predetermined route,

 a plurality of station apparatus arranged on a mobile body adapted to move along the predetermined route and

20 an intra-mobile-body communication network for connecting the plurality of station apparatus,

 the station apparatus being adapted to become belonging to one of the access point apparatus so as to be connected to a network by way of the access point apparatus,

25 each of the station apparatus having means for judging if it is located front-most in the moving direction of the mobile body or not and storage means for storing information showing the access point apparatus to which it used to belong to,

 the station apparatus located front-most in the moving direction of the mobile body being adapted to store the information it acquires at the time of

retrieving an access point apparatus to be belonging to in its storage means,
the station apparatus other than the station apparatus located front-most
in the moving direction of the mobile body being adapted to refer to the
information stored by the front-most station apparatus in its storage means prior
5 to retrieving an access point apparatus to be belonging to.

9. The communication system according to claim 7 or 8, wherein
each of the station apparatus judges if it is located front-most in the
moving direction of the mobile body or not according to the information stored in
the storage means by itself and by the other station apparatus.

10. The communication system according to any one of claims 1
through 9, wherein,

when two or more than two station apparatus are located front-most in the
moving direction of the mobile body, at least one of the station apparatus keeps on
belonging to the access point apparatus it has been belonging to if the
15 communication quality is degraded relative to the access point apparatus, while
the remaining station apparatus retrieves or retrieve the access point apparatus to
be belonging to.

11. A communication system comprising:
a plurality of access point apparatus arranged along a predetermined
20 route,

a plurality of station apparatus arranged on a plurality of mobile bodies
adapted to move in the same direction along the predetermined route, each of the
mobile bodies having at least a station apparatus arranged thereon and

25 an inter-mobile-body communication network for connecting the plurality
of station apparatus,

the station apparatus being adapted to become belonging to one of the
access point apparatus by wireless communication so as to be connected to a
network by way of the access point apparatus,

each of the station apparatus having means for judging if the mobile body

where it is arranged is located front-most in the moving direction of the mobile body or not,

the station apparatus arranged on the mobile body located front-most in the moving direction being adapted to notify the other station apparatus with the 5 information acquired at the time of retrieving an access point apparatus to be belonging to by way of an intra-mobile-body communication network.

12. A communication system comprising:

a plurality of access point apparatus arranged along a predetermined route,

10 a plurality of station apparatus arranged on a plurality of mobile bodies adapted to move in the same direction along the predetermined route, each of the mobile bodies having at least a station apparatus arranged thereon and

an inter-mobile-body communication network for connecting the plurality of station apparatus,

15 the station apparatus being adapted to become belonging to one of the access point apparatus by wireless communication so as to be connected to a network by way of the access point apparatus,

each of the station apparatus having means for judging if the mobile body where it is arranged is located front-most in the moving direction of the mobile 20 body or not,

the station apparatus arranged on the moving bodies not located front-most in the moving direction being adapted to acquire the information acquired by the station apparatus arranged on the mobile body located front-most in the moving direction at the time of retrieving an access point apparatus to be 25 belonging to by way of an intra-mobile-body communication network.

13. A communication system comprising:

a plurality of access point apparatus arranged along a predetermined route,

a plurality of station apparatus arranged on a plurality of mobile bodies

adapted to move in the same direction along the predetermined route, each of the mobile bodies having at least a station apparatus arranged thereon and an inter-mobile-body communication network for connecting the plurality of station apparatus,

5 the station apparatus being adapted to become belonging to one of the access point apparatus by wireless communication so as to be connected to a network by way of the access point apparatus,

the system further comprising storage means connected to the inter-mobile-body communication network and adapted to store the information 10 showing the access point apparatus to which each of the station apparatus used to belong to,

each of the station apparatus having means for judging if the mobile body where it is arranged is located front-most in the moving direction of the mobile body or not,

15 the station apparatus arranged on the mobile body located front-most in the moving direction being adapted to store the information it or they acquired at the time of retrieving an access point apparatus to be belonging to by way of an intra-mobile-body communication network,

the station apparatus arranged on the moving bodies not located 20 front-most in the moving direction being adapted to refer to the information stored in the storage means by the front-most station apparatus arranged on the mobile body located front-most in the moving direction prior to retrieving an access point apparatus to be belonging to.

14. A communication system comprising:

25 a plurality of access point apparatus arranged along a predetermined route,

a plurality of station apparatus arranged on a plurality of mobile bodies adapted to move in the same direction along the predetermined route, each of the mobile bodies having at least a station apparatus arranged thereon and

an inter-mobile-body communication network for connecting the plurality of station apparatus,

the station apparatus being adapted to become belonging to one of the access point apparatus so as to be connected to a network by way of the access
5 point apparatus,

each of the station apparatus having means for judging if the mobile body where it is arranged is located front-most in the moving direction of the mobile body or not and storage means for storing information showing the access point apparatus to which it used to belong to,

10 the station apparatus arranged on the mobile body located front-most in the moving direction being adapted to store the information it or they acquired at the time of retrieving an access point apparatus to be belonging to in it or their storage means, whichever appropriate,

15 the station apparatus arranged on the moving bodies not located front-most in the moving direction being adapted to refer to the information stored by the station apparatus arranged on the mobile body located front-most in the moving direction in its or their storage means prior to retrieving an access point apparatus to be belonging to.

15. The communication system according to claim 13 or 14, wherein
20 each of the station apparatus judges if it is located front-most in the moving direction of the mobile body or not according to the information stored in the storage means by itself and by the other station apparatus.

16. The communication system according to any one of claims 11 through 15, wherein,

25 when two or more than two station apparatus are arranged on the mobile body located front-most in the moving direction, at least one of the station apparatus keeps on belonging to the access point apparatus it has been belonging to if the communication quality is degraded relative to the access point apparatus, while the remaining station apparatus retrieves or retrieve the access point

apparatus to be belonging to.